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RCM as [(number of normal 'activities' days missed due to migraine) + (number of normal 'activities' days performed with migraine symptoms)(100% − % effectiveness while working with symptoms)/100%] × (daily wages). Daily wages for the corresponding occupational category were used for patients with paid jobs. For patients without paid jobs, a daily wage of $0 and a daily wage for private 'household workers' ($8) was assigned for the HCA and RCM, respectively. **RESULTS:** There were 178 patients who completed the study (90% female, 96% Caucasian, average age 39 years). There were 82% of patients with paid jobs and 18% without paid jobs. The 6 month NWPC lost were $184,143 and $203,505 using the HCA and RCM, respectively. **CONCLUSION:** The RCM yields a higher estimate of NWPC of migraineurs than the HCA. The HCA may underestimate the NWPC of migraineurs. The method used to value NWPC impacts the results of studies that are conducted from the societal perspective.

PMT36

LINGUISTIC VALIDATION OF THE WORK LIMITATIONS QUESTIONNAIRE (WLQ)

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INTRODUCTION: The increase of patient-based assessments in clinical trials has emphasized the need for cross-culturally valid instruments to pool data across countries. The Work Limitations Questionnaire (WLQ) consists of 25 questions divided into 4 scales, was developed in US English and is designed for the assessment of the impact of health problems on work. **METHODS:** Prior to use in an international trial, the original questionnaire underwent linguistic validation in 3 languages. Coordinated by a QoL specialist in each target country, an internationally recognised translation methodology was followed: preliminary versions in Canadian French and US Spanish were established after forward/backward translation. The Canadian English version was established after a review of the original by a QoL specialist in Canada. Throughout the process the author clarified the concepts underlying each item. **RESULTS:** Linguistic and conceptual issues arose during the translation process. The notion of "work without stopping to take breaks or rests" could not be translated literally, as in some countries, it is illegal not to take breaks. It was therefore translated as "work without stopping to take more breaks than usual". Likewise, the alternative use of "clients" and "customers" in the original could be translated by only one word in the translations. **CONCLUSION:** The steps performed ensure the conceptual equivalence between the original and the preliminary language versions. Testing on a sample target population in each country and the comparison of all languages will ensure the clarity, appropriateness of wording and acceptability of the translations as well as their international harmonization. Psychometric testing will be important to ensure similar relationships among scales across countries.

PMT37

BENEFITS OF EARLY MODELING IN DRUG DISCOVERY

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Simulation modeling can be used to obtain cost-effectiveness information on drugs still in early development. **OBJECTIVE:** To construct a disease-based simulation model characterizing the current patterns of treatment of osteoporosis and their associated clinical and economic outcomes. The model can then be used to estimate the marginal value of each proposed clinical characteristic of a new drug for osteoporosis. **METHODS:** We performed a systematic literature review of the epidemiology, treatment guidelines and patterns of osteoporosis, as well as of previous economic models and cost-effectiveness literature in this area. Interviews with clinicians and epidemiologists were conducted to identify important parameters for inclusion in the model. Information from these sources was utilized to develop the model. **RESULTS:** A state transition model has been constructed. Twenty-five health states are used, with the inclusion of four fracture sites (hip, wrist, vertebral and other), and other diseases (i.e., breast cancer, coronary heart disease) that osteoporosis interventions may impact. Simulation duration, cohort size, patient age matrices and distribution of initial health states can all be varied, allowing a number of assumptions to be tested. Quality adjusted life year values and costs for the given year and subsequent years associated with each health state are included. The impact of relative risks associated with each intervention are incorporated into the model, together with start and rise times, fall and stop times. **CONCLUSION:** Through simulation modeling, data can be combined to estimate clinical outcomes and economic consequences of osteoporosis treatment early in the drug development process. Such information can then be used to establish the key clinical characteristics that will need to be obtained in order to achieve reimbursement.

Willingness-to-Pay & Work Performance Research PWP

PWP1

COMPARATIVE BURDEN OF ILLNESS AT TWO LARGE US COMPANIES

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OBJECTIVE: The purpose of this investigation was to compare the experiences of two US corporations, each employing over 50,000 workers and each offering a comprehensive benefit package, in terms of direct (i.e., medical and pharmaceutical) and indirect (i.e., sick leave and disability) costs of illness. **METHODS:** Based on a 1996 sample of workers (n = 9439), retrospective medical and pharmaceutical claims at the employee level were linked with contemporaneous archival measures of productivity, including sick leave and disability. These results were normalized to the age-gender distribution of the US labor force. To assess the comparability of experiences at each company, direct and indirect burdens of illness were examined both in the aggregate as well as at the disease-group level. **RESULTS:** The average annual cost of illness per employee was $3,272 in Company A (59% medical, 9% pharmaceutical, and 32% work loss) and $3,574 in Company B (44% medical, 9% pharmaceutical, and 47% work loss). Although musculoskeletal diseases represented the greatest total cost outlay for both companies (i.e., 10% at Company A, 16% at Company B), the distribution of direct and indirect costs varied by diagnostic grouping. **CONCLUSIONS:** A traditional focus on direct costs alone would vastly understate the impact of illness to the employer, since for every dollar of direct expenditures, these companies spent between $0.47 and $0.87 on additional indirect costs. Worksite and employee health management programs tailored to the characteristics of the particular workforce in question could help maximize return on investment in employee health.

PWP2

A METHODOLOGY TO MEASURE PRODUCTIVITY OF HEALTH OUTCOMES GROUPS

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Health Outcomes Research (OR) groups exist in most major pharmaceutical companies and are currently challenged to quantify their productivity and value to the organization. Per a recent Tufts survey, industry leaders expect continued growth in OR departments substantiating the need for metrics. **METHODS:** Our OR Department, positioned within Clinical Research, was approached by upper management to create a metrics reporting system. The group discussed a comprehensive list of departmental activities until core items were agreed upon. Using a 0-10 scale, items were ranked by perceived value to the company using the Delphi technique. To approximate time expenditure, complexity categories (1 = simple, 2 = moderate, 3 = complex), based on estimates of average number of workdays to complete each activity, were assigned to each item. **RESULTS:** An initial list of 20 items was reduced by the group to yield 11 core items: publications (1.8 = Delphi weight), models (1.4), strategic plans (1.3), protocols (0.9), instrument development (0.9), research reports (0.9), abstracts (0.7), reviews (0.6), analysis plans (0.6), presentations (0.5), IPMs (0.4). The value-score was generated by multiplying the count of each item by its Delphi-weight then summed to result in a composite value-score. The complexity-score was calculated similarly. These two scores, reported separately to enhance understanding of both output and labor, were divided by the number of team members to produce productivity units per headcount. **CONCLUSION:** This metrics system represents one approach to valuing OR group contributions. We have implemented a validation and QA process to observe performance over time and assess appropriateness of the items selected. This system does not capture activities conducted to support departmental and organizational infrastructure. Therefore, is not appropriate for calculating standard costs or for valuing all contributions attributable to OR groups. In addition to concisely communicating OR activities to upper-management, metrics help team members focus on value-added activities and project prioritization.

PWP3

CONSUMER PREFERENCES FOR DENTAL ANESTHESIA: PUTTING YOUR MONEY WHERE YOUR MOUTH IS

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OBJECTIVES: Consumer preferences and willingness-to-pay (WTP) were measured for a new dental anesthetic (dental gel) versus existing anesthetic options for periodontal recall cleanings. **METHODS:** The study was conducted by developing and administering a computer-based interactive survey to study subjects. First, clinical information was provided, describing periodontal disease, recall cleaning visits, and anesthetic options (no freezing, dental needle, and dental gel). Subjects were asked to choose which freezing option they would prefer, if they required freezing. Strength of preference for dental gel was measured using WTP: (1) at the subject's point of consumption, and (2) as a monthly dental insurance premium, for any dental plan beneficiary at the point of consumption. **RESULTS:** Both recall patients (n = 97) and general population subjects (n = 196) participated in the study. The majority of general subjects (81.0%) and recall subjects (82.5%) chose dental gel over other options. The majority of general subjects (86.7%) and recall subjects (83.8%) who preferred dental gel were willing to pay for dental gel. The median WTP to have dental gel available at the point of consumption was $20.00 per visit for the general population, and $10.00 for the recall population. The majority of general subjects (72.4%) and recall subjects (73.2%) were willing to pay an insurance premium for dental gel, even if they did not personally prefer dental gel. The median monthly premium was $2.00 per month for both groups. **CONCLUSIONS:** Dental gel was overwhelmingly preferred by general and